

Application Serial No. 10/717,424
Reply to Office Action of February 24, 2005

PATENT
Docket: CU-3446

Amendments To The Claims

The listing of claims presented below will replace all prior versions, and listings, of claims in the application.

Listing of claims:

1. (currently amended) A transmitter used in a CDMA mobile communication system comprising:
 - a pilot transmit unit further comprising:
 - a pilot data generator which generates pilot data;
 - a first modulator which modulates the pilot data;
 - a second modulator which spreads a spectrum of modulated pilot data from the first modulator to thereby generate a pilot signal;
 - and
 - a timing generator which generates a timing signal applied to at least one of the pilot data generators and the first and second modulators so that the pilot signal is intermittently transmitted; and
 - traffic channel transmit units which respectively transmit data signals in respect of traffic channels, wherein the data signals are transmitted continuously even when the pilot signal is transmitted intermittently.

2. (original) A transmitter used in a CDMA mobile communication system as claimed in claim 1, wherein said pilot signal has a period shorter than an interval in which the pilot signal is intermittently transmitted.

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3. (currently amended) A receiver used in a CDMA mobile communication system comprising:

a pilot channel receive unit which demodulates pilot signals respectively transmitted intermittently in a spread spectrum formation by transmitters, and detects from the pilot signals, a timing for a traffic channel demodulation; and

a traffic channel receive unit which demodulates data at the timing detected by said pilot channel receive unit; and the timing detected by comparing peaks of the pilot signals intermittently transmitted, the timing for the traffic channel demodulation corresponding to a greatest one of the peaks, wherein the data signals are transmitted continuously even when the pilot signal is transmitted intermittently.

4. (currently amended) A transmitter used in a CDMA mobile communication system, comprising:

a pilot channel transmit unit which is configured to transmit a pilot signal in a spread spectrum formation; and

traffic channel transmit units which are configured respectively to transmit data signals in respective traffic channels,

wherein the pilot channel transmit unit is configured to transmit the pilot signal intermittently; a start timing of the pilot signal is offset from a start timing of a pilot signal transmitted by another transmitter in said CDMA mobile communication system; and said pilot signal whose start timing is offset has a

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period shorter than an interval at which said pilot signal whose start timing is offset is transmitted, and

wherein the data signals are transmitted continuously even when the pilot signal is transmitted intermittently.

5. (currently amended) A transmitter used in a CDMA mobile communication system, comprising:

a pilot channel transmit unit which is configured to transmit a first pilot signal intermittently in a spread spectrum formation; and

traffic channel transmit units that are configured respectively to transmit data signals in respective traffic channels,

wherein the pilot channel transmit unit is configured to start to transmit the first pilot signal at a different timing from a timing at which another pilot channel transmitter in said CDMA mobile communication system starts to transmit a second pilot signal, and said first pilot signal has a period shorter than an interval at which said first pilot signal is transmitted, and

wherein the data signals are transmitted continuously even when the pilot signal is transmitted intermittently.

6. (currently amended) A receiver for use in a CDMA mobile communication system, comprising:

a pilot channel receive unit that receives pilot signals transmitted by

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transmitters in said CDMA mobile communication system,
wherein a start timing of the pilot signals transmitted by different
transmitters are offset from each other, and each pilot signal has a period
shorter than an interval at which each pilot signal is transmitted,
wherein data signals are transmitted continuously even when
the pilot signal is transmitted intermittently.

7. (currently amended) A receiver for use in a CDMA mobile communication system, comprising:

a pilot channel receive unit which receives pilot signals transmitted by transmitters in said CDMA mobile communication system,
wherein the pilot signals start to be transmitted at different timing from each other, and each pilot signal has a period shorter than an interval at which each pilot signal is transmitted,
wherein data signals are transmitted continuously even when
the pilot signal is transmitted intermittently.

8. (currently amended) CDMA mobile communication method in a CDMA mobile communication system, comprising:

a transmitter, comprising:
a pilot channel transmit unit which is configured to transmit a pilot signal in a spread spectrum formation; and
traffic channel transmit units which are configured

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respectively to transmit data signals in respective traffic channels,
wherein the pilot channel transmit unit is configured to
transmit the pilot signal intermittently; a start timing of the pilot
signal is offset from a start timing of a pilot signal transmitted by
another transmitter in said CDMA mobile communication system;
and said pilot signal whose start timing is offset has a period
shorter than an interval at which said pilot signal whose start timing
is offset is transmitted,

wherein the data signals are transmitted continuously
even when the pilot signal is transmitted intermittently; and
a receiver, comprising:

a pilot channel receive unit that receives pilot signals
transmitted by transmitters in said CDMA mobile communication
system,

wherein a start timing of the pilot signals transmitted by
different transmitters are offset from each other, and each pilot
signal has a period shorter than an interval at which each pilot
signal is transmitted.

9. (currently amended) A CDMA mobile communication method in a CDMA
mobile communication system, comprising the steps of:

a) transmitting, on transmit sides, pilot signals in a spread spectrum
formation intermittently; and

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b) receiving, on a receive side, pilot signals transmitted by transmitters in said CDMA mobile communication system,

wherein a start timing of a pilot signal is offset from a start timing of another pilot signal transmitted by another transmitter in said CDMA mobile communication system, and said pilot signal whose start timing is offset has a period shorter than an interval at which said pilot signal whose start timing is offset is transmitted, and

wherein data signals are transmitted continuously even when the pilot signal is transmitted intermittently.

10. (currently amended) A CDMA mobile communication method in a CDMA mobile communication system, comprising the steps of:

a) transmitting, on transmit sides, pilot signals in a spread spectrum formation intermittently; and

b) receiving, on a receive side, pilot signals transmitted by transmitters in said CDMA mobile communication system,

wherein the pilot signals start to be transmitted at different timing from each other, and each pilot signal has a period shorter than an interval at which each pilot signal is transmitted, and

wherein data signals are transmitted continuously even when the pilot signal is transmitted intermittently.

11. (currently amended) CDMA mobile communication method in a CDMA mobile

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communication system, comprising:

a transmitter, comprising:

a pilot channel transmit unit which is configured to transmit a pilot signal in a spread spectrum formation; and traffic channel transmit units which are configured respectively to transmit data signals in respective traffic channels, wherein the pilot channel transmit unit is configured to transmit the pilot signal intermittently; a start timing of the pilot signal is offset from a start timing of a pilot signal transmitted by another transmitter in said CDMA mobile communication system; and said pilot signal whose start timing is offset has a period shorter than an interval at which said pilot signal whose start timing is offset is transmitted,

wherein the data signals are transmitted continuously even when the pilot signal is transmitted intermittently; and

a receiver, comprising:

a pilot channel receive unit which receives pilot signals transmitted by transmitters in said CDMA mobile communication system,

wherein the pilot signals start to be transmitted at different timing from each other, and each pilot signal has a period shorter than an interval at which each pilot signal is transmitted.

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12. (currently amended) CDMA mobile communication method in a CDMA mobile communication system, comprising:

a transmitter, comprising:

a pilot channel transmit unit which is configured to transmit a first pilot signal intermittently in a spread spectrum formation; and traffic channel transmit units that are configured respectively to transmit data signals in respective traffic channels,

wherein the pilot channel transmit unit is configured to start to transmit the first pilot signal at a different timing from a timing at which another pilot channel transmitter in said CDMA mobile communication system starts to transmit a second pilot signal, and said first pilot signal has a period shorter than an interval at which said first pilot signal is transmitted,

wherein the data signals are transmitted continuously even when the pilot signal is transmitted intermittently; and

a receiver, comprising:

a pilot channel receive unit that receives pilot signals transmitted by transmitters in said CDMA mobile communication system,

wherein a start timing of the pilot signals transmitted by different transmitters are offset from each other, and each pilot signal has a period shorter than an interval at which each pilot signal is transmitted.

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13. (currently amended) CDMA mobile communication method in a CDMA mobile communication system, comprising:

a transmitter, comprising:

a pilot channel transmit unit which is configured to transmit a first pilot signal intermittently in a spread spectrum formation; and traffic channel transmit units that are configured respectively to transmit data signals in respective traffic channels,

wherein the pilot channel transmit unit is configured to start to transmit the first pilot signal at a different timing from a timing at which another pilot channel transmitter in said CDMA mobile communication system starts to transmit a second pilot signal, and said first pilot signal has a period shorter than an interval at which said first pilot signal is transmitted,

wherein the data signals are transmitted continuously even when the pilot signal is transmitted intermittently;

a receiver, comprising:

a pilot channel receive unit which receives pilot signals transmitted by transmitters in said CDMA mobile communication system,

wherein the pilot signals start to be transmitted at different timing from each other, and each pilot signal has a period shorter than an interval at which each pilot signal is transmitted.